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(54)OPTICAL WAVELENGTH FILTER WITH OPTICAL SWITCH FOR WAVELENGTH MULTIPLEX TRANSMISSION

(57)Abstract:

PROBLEM TO BE SOLVED: To make an optical module low-cost by combining an optical filter and an optical switch together.

SOLUTION: The filter with the optical switch is constituted by cascading an optical filter 12 which transmits only specific wavelength λ_0 among light wavelength inputs of λ_0, λ_1, λ_2, λ_3, etc., and an optical switch 13 which passes transmitted light as it is in the absence of an applied voltage, but cuts off the transmitted light in the presence of the applied voltage. When an optical module for a three-wavelength optical network unit which uses this element needs to selectively photodetect the wavelength λ_1, only the optical switch S_1 of the optical filter F_1 for the wavelength to be selected is turned OFF and the optical switches S_2 and S_3 of other optical filters F_2 and F_3 are turned ON. Only the light λ_1 of the wavelength of the optical filter F_1 which is OFF is transmitted to a photodiode(PD) behind the optical filter and then detected by the PD. Therefore, light with arbitrary wavelength can be photodetected by only one PD to actualize a low-priced optical module.